

**Amendments to the Specification (paragraph nos. per specification filed 05/16/05):**

Please replace the title of the application with the following title:

**SYSTEMS AND METHODS FOR OPTIMIZING AND SYSTEM FOR SELECTING  
BUILDING MATERIALS THAT MEET PROJECT CRITERIA**

Please replace paragraph [0011] with the following paragraph:

[0011] The present invention provides for the optimizing of item values associated with a project or application while meeting certain criteria, and may be used in a wide variety of applications employing a wide variety of items. For example, the items may comprise building materials or systems used in constructing a building. These items may, in addition, be energy-saving or energy-related products or systems, such as insulation material (categorized by an insulation R-value) or a HVAC (heating, ventilating and air-conditioning) system, which includes sub-systems of ducting, furnaces, etc. An exemplary embodiment of the invention is used to optimize building materials or system costs (e.g., initial or lifetime) while still complying with one or more criteria, such as target codes. For instance, the embodiment may be used to optimize plumbing material costs while meeting a plumbing code, to optimize structural material costs while complying with a building code, or to optimize energy-using or energy-saving materials and/or systems costs while complying with an energy code, an example of which is the International Energy Conservation Code (IECC) of the International Code Council (ICC). Other applications where item costs may be optimized while still meeting certain criteria include electrical or foundation work.

Please replace paragraph [0016] with the following paragraph:

[0016] Hence, sets of items that meet a target requirement, such as the IECC or an energy budget, may be determined by iterating through items having different thermal characteristics (e.g., R-values) for each area of the building, and by determining which sets produce an acceptable value. In a situation where the IECC represents the desired target, one method to comply is to represent a set value by a UA value, where the UA value is acceptable when the code-specified UA value is not exceeded. When using an energy budget compliance method, a set value is represented by a total energy level, and is acceptable when the established energy baseline is not exceeded by this level. Software packages for calculating UA values for a given structure include MECcheck<sup>TM</sup>, available from Pacific Northwest Laboratory, for the U.S. Department of Energy. Such software packages require that information on the structure be input into a database. Such information may include information on the walls, ceilings, floors, glazing, crawl space, and slab perimeter. Conveniently, such information may also be extracted from CAD/CAM (computer-aided design/manufacturing) drawings or similar methods.

Please replace paragraph [0033] with the following paragraph:

[0033] The optimizer system of the invention may use a combination of genetic and reinforced learning algorithms to competitively replace a given set of costs. For example, if a "new result" is better than the "past result," which serves as the source of a replicated result, then the "new result" would inherit all of the preference values of the "past results" of that "past result."

Depending on the results of the competition, the updated preference values ~~made are found~~ either in the both "past result" or in both the "new result" and the "past result" and there is no need to ~~replicate them retest that option in the next iteration.~~

Please replace paragraph [0041] with the following paragraph:

[0041] A CAD (computer-aided design) "reader" interface database 40 is used to store CAD files, and may also be accessed by interface program 12 for determining the lowest cost set of items, as well as for performing other calculations, such as thermal calculations to determine an ITQ. Interface program 12 may also access interface database [42] 40 to compare structural configurations and, based on these comparisons, to recommend changes in structural design to allow compliance with target requirements at lesser costs. An alliance contractor database 42 may be provided to store information on contractors that may be engaged to install the items and other components of the energy package (e.g., HVAC components). An alliance supplier interface database 44 may be provided to list suppliers that supply the various types of products and systems, as well as their associated costs.